

REMARKS

Claims 1-4 are withdrawn. Claim 8 is cancelled.

Claims 5-7 and 9-17 stand rejected.

Claims 5, 10, and 14-17 are amended. No new subject matter is added.

Claims 5-7 and 9-17 remain pending. Reconsideration and allowance of the pending claims is respectfully requested in light of the following remarks.

35 USC § 112 Rejections

Claims 6, 11 and 14-17 stand rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 6, 11, and 15, it is allegedly unclear as to what is meant by a first sector having a line width that is narrower than a line width of the gate. According to MPEP 2173.05(a), the meaning of every term should be apparent from the prior art or from the specification and drawings at the time the application was filed. The applicant notes that it is apparent from the originally filed application (FIG. 5a; page 5, lines 4-8) that “line width” refers to the lateral extent of a structure. Consequently, this rejection of claims 6, 11, and 15 under 35 USC § 112 is respectfully traversed.

With respect to claim 14, it is allegedly unclear as to how a surface region can have both a top region and a bottom region. The Examiner is respectfully reminded of the telephone conversation that took place with the Applicant’s attorney on March 17, 2003. At that time the discussion focused on how the applicant’s region 74 (FIG. 7a) could be distinguished from the “egg-shaped” region 24 disclosed by U.S. Patent No. 5,668,021 to Subramanian et al. (‘Subramanian’). At that time the Examiner suggested that if the applicant’s region 74 could be additionally limited as having a “top surface” or “topmost surface” and a “bottom surface” or “bottommost surface”, where the top surface was greater than the bottom surface, then applicant’s region 74 would distinguish over Subramanian’s egg-shaped region 24.

In keeping with this discussion, claim 14 recites that the impurity implantation region has a top surface and a bottom surface, wherein the top surface is larger than the bottom surface. In keeping with MPEP 2173.05(a), this limitation is apparent from the drawings (FIG. 7a) at the time the application was filed. Consequently, this rejection of claims 14-17 under 35 USC § 112 is respectfully traversed.

35 USC § 103 Rejections

Claims 5-7 and 9-17 stand rejected under 35 USC §103(a) as being unpatentable over Subramanian in view of Applicant Admitted Prior Art (AAPA).

With regard to claim 5, it is amended to recite, *inter alia*, an impurity implantation region comprising a depletion channel of the second conductivity type completely occupying a first surface region of the semiconductor substrate, wherein a lateral extent of the first surface region is equal to a lateral extent of the impurity implantation region. This amendment is supported by FIG. 7a.

Even if the AAPA teaches what the Examiner suggests, Subramanian fails to disclose that the lateral extent of the first surface region is equal to the lateral extent of the impurity implantation region. Consequently, the Subramanian/AAPA combination fails to establish a *prima facie* case of obviousness with respect to claim 5. Claims 6, 7, and 9 are not obvious in view of the Subramanian/AAPA combination for at least the same reason as claim 5.

With respect to claim 10, the applicant respectfully submits that the rejection is improper and that the rejection is traversed for the following reason. Claim 10 recites, *inter alia*, an impurity implantation region formed on the semiconductor substrate, having impurities of a second conductivity type, and with a lateral extent coextensive with the first sector, the impurity implantation region further comprising a first surface region that functions as a depletion channel and that occupies the entire top surface of the semiconductor substrate within the lateral extent of the impurity implantation region.

According to Webster's New Twentieth Century Dictionary, Unabridged (2 ed., 1983), "coextensive" means 'equally extensive, having equal extent in time or space.' Thus, claim 10 recites that the impurity implantation region and the first sector have the same lateral extent. Furthermore, claim 10 recites that the first surface region occupies the entire top surface of the semiconductor substrate within the lateral extent of the impurity implantation region. It is apparent that Subramanian's element 24 does not show a surface region that occupies the entire top surface of the semiconductor substrate within the lateral extent of the impurity implantation region.

Even if the AAPA teaches what the Examiner suggests, Subramanian fails to disclose a surface region that occupies the entire top surface of the semiconductor substrate within the lateral extent of the impurity implantation region. Consequently, the Subramanian/AAPA combination fails to establish a *prima facie* case of obviousness with respect to claims 10, 11, 12, and 13.

Regarding claim 14, as explained above with respect to the § 112 rejection, Subramanian fails to disclose an impurity implantation region with a top surface that is larger than a bottom surface. At most, Subramanian shows a top surface of region 24 that is equal to a bottom surface of region 24.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 5-17 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.



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Respectfully submitted,

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A handwritten signature of Alan T. McCollom is written over a horizontal line.

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